



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/751,823	01/05/2004	Hua Wang	RD-29,605-4	3629

7590 11/04/2004

General Electric Company  
CRD Patent Docket Rm 4A59  
Bldg. K-1  
P.O. Box 8  
Schenectady, NY 12301

EXAMINER

BOYKIN, TERRESSA M

ART UNIT	PAPER NUMBER
----------	--------------

1711

DATE MAILED: 11/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/751,823

Applicant(s)

WANG, HUA

Examiner

Terressa M. Boykin

Art Unit

1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 1-5-04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-61 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-61 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4-26-04
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

**Claim Rejections - 35 USC § 102**

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-61 are rejected under 35 U.S.C. 102(e) as being anticipated by US Pub **2003/0175488** page 2 paragraphs 13, 14 and 20 and the examples; page 3 paragraph 24 and 28, Examples 47 –48, paragraph 50 of page 5, in paragraph 79 of page 7.

Applicants' claim 1 discloses a multilayer article comprising (i) a coating layer comprising a block copolyestercarbonate comprising structural units derived from at least one 1,3-dihydroxybenzene and at least one aromatic dicarboxylic acid, (ii) a second layer comprising a polymer comprising carbonate structural units, (iii) an adhesive layer comprising a polyurethane, and (iv) a substrate layer comprising at least one material selected from the group consisting of a thermoplastic resin, a cured thermoset resin, a metal, a ceramic, a glass, and a cellulosic material, wherein the coating layer is in contiguous contact with the second layer, and the adhesive layer is in contiguous contact with the second layer and the substrate layer.

Note with regard to applicants' claims 1, 2-7, as well as claims 29, 30, 31, 32, 35, 36, 37, 38, 39, and 40, the reference discloses The reference an article having an surface/coating layer comprising resorcinol arylate polyester chain members. In one embodiment, the article is a multilayer structure with the coating layer comprising resorcinol arylate polyester chain members. The instant structure displays good adhesion properties, good mechanical properties, weatherability, and UV resistance.

The reference further discloses that the outer layer of the article of the present invention is comprised of arylate polyester chain members. Said chain members comprise at least one diphenol residue in combination with at least one dicarboxylic acid residue wherein the diphenol residue is derived from a 1,3-dihydroxybenzene

Art Unit: 1711

moiety, as illustrated in Formula 1, commonly referred to as resorcinol or resorcinol moiety. Additionally, the reference notes that suitable dicarboxylic acid residues include aromatic dicarboxylic acid residues derived from monocyclic moieties, preferably isophthalic acid, terephthalic acid, or mixtures of isophthalic and terephthalic acids, or from polycyclic moieties, including diphenyl dicarboxylic acid, diphenylether dicarboxylic acid, naphthalenedicarboxylic acid such as naphthalene-2,6-dicarboxylic acid. In one embodiment, the dicarboxylic acid is 1,4-cyclohexanedicarboxylic acid. See also page 3 paragraph 24 and 28.

Moreover, with regard to applicants' claims 8, 9, and 41-42 the reference discloses that the outer layer may be comprised of a block copolyestercarbonate comprising resorcinol arylate-containing block segments in combination with organic carbonate block segments. See also page 2 paragraph 20 and the examples therein.

With regard to applicants' claims 10, 11, 43 and 44 wherein the carbonate portion of the copolyestercarbonate comprises structural units derived from bisphenol A, note claims 37 and 38 of the reference wherein the second layer comprises a bisphenol A polycarbonate.

With regard to applicants' claims 12 and 45 wherein the second layer further comprises at least one colorant selected from the group consisting of dyes, pigments, metal flakes, and glass flakes, note that the reference states on page 2 paragraph 20 that the composition may additionally contain art-recognized additives including but not limited to metal flakes, pigments, dyes, impact modifiers, UV screeners, flame retardants, fillers, stabilizers, flow aids, ester interchange inhibitors, and mold release agents.

With regard to applicants' claims 13 and 46 wherein the adhesive layer comprises at least one polyurethane comprising structural units derived from at least one polyol selected from the group consisting of polyether polyols, polyester polyols, polytetramethylene ether glycol, hexamethylene glycol and polyols based on polybutadiene, note that the reference states on page 10 paragraph 0111 the reference notes the adhesive coating is a clear exterior urethane. Further, the reference discloses that when the multilayer structure of the present invention is to adhere to/mold onto a thermoset or metal substrate, the tie-layer is comprised of a thermoplastic resin selected from the group of an ethylene/vinyl acetate copolymer (EVA), a polyester, a copolyester, a copolyamide, a polyurethane (TPU), a styrene block copolymers (SEBS), a modified SBES, or blends thereof.

With regard to applicants' claims 14 and 47 wherein the polyurethane comprises structural units derived from methylene diphenyl diisocyanate or- methylene biscyclohexyl diisocyanate, the reference discloses in Examples 47 -48 that laminates of copolyestercarbonate-polycarbonate film assembly onto e-coated steel with PU adhesive tie-layer,

With regard to applicants' claims 15, 18, 48 and 51 wherein the polyurethane comprises an aliphatic polyurethane film, and wherein the adhesive layer further comprises at least one additional resinous material which is miscible with or compatible with that portion of the block copolymer which is not polyurethane, the reference discloses the substrate layer may comprise a liquid cast polymer film formed from urethane polymers, acrylate polymers, vinyl polymers, fluoropolymers and blends thereof. Other examples include a cast film comprising an alloy of an acrylic polymer and polyvinylidene fluoride.

With regard to applicants' claims 16, 17, 19, 49, 50, and 52 wherein the adhesive layer comprises a block copolymer comprising a thermoplastic polyurethane block and at least one block comprising structural units derived from styrene, see claims 16 and 21 of the reference. note that the reference discloses on page

With regard to applicants' claims 20, 21, 53 and 54 wherein the multilayer article exhibits a ninety-degree peel force of at least 1750 Newtons per meter, See Tables 4, 5, 6, 8 and 9. Note also that claims 41 and 42 of the reference discloses that the adhesion of the polyurethane adhesive layer to the polycarbonate-comprising layer provides a ninety-degree peel force of at least 700 and 1750 Newtons per meter respectively.

With regard to applicants' claim 22 and 55 wherein the substrate layer comprises at least one thermoplastic resin selected from the group consisting of the particular polymers as claimed by applicants, note that the reference discloses that the outer layer is a blend of polymers comprising resorcinol arylate polyester chain members and at least one other polymer selected from at least one of miscible, immiscible, and compatibilized blends including but not limited to: polycarbonates, polyesters, polyetherimides, polyphenylene ethers, PC/ABS, PC/ASA, PC/PBT, PC/PET, PC/polyetherimide, polyamide, polyester/polyetherimide, polyphenylene ether/polystyrene, polyphenylene ether/polyamide, polyphenylene ether/polyester, blends, regrinds and foams of any of the above. In another embodiment, the outer layer is comprised of a block copolyestercarbonate comprising resorcinol arylate-containing block segments in combination with organic carbonate block segments.

With regard to applicants' claims 23 and 56 wherein the substrate layer comprises at least one cured thermoset resin selected from the group consisting of moieties those as disclosed by applicants, note that the reference discloses in each example, the adhesion strength of the copolyestercarbonate-polycarbonate film assembly to the cured thermoset substrate was found to be excellent.

With regard to applicants' claims 24 and 57 wherein the substrate layer further comprises a

Art Unit: 1711

filler selected from the group consisting of glass fibers, carbon fibers, at least one thermoplastic resin, and mixtures thereof, the reference notes that the compound materials which may be used are glass filled, using for examples, long-glass-fibre-reinforced thermoplastics with variable glass contents, or long-fiber injection technology. See page 3 paragraph 32 and claim 19 of the reference.

With regard to applicants' claims 25 and 58 wherein the substrate layer comprises a filled, cured thermoset resin selected from the group consisting of reaction injection molding (RIM) compound, long fiber injection polyurethane (LFI-PU) foam, sheet-molding compound (SMC), bulk molding compound (BMC), thick molding compound (TMC), and an acrylic ester-derived thermoset resin comprising a polyphenylene ether, the reference discloses that compositions and weatherable multilayer articles comprising resorcinol arylate chain members are known. The prior art references generally discuss methods to manufacture multilayer articles by various processes including co-injection molding, coextrusion, overmolding, multi-shot injection molding, sheet molding and placement of a film of the coating layer material on the surface of a substrate layer optionally followed by adhesion of the two layers by a tie-layer, with the coating layer comprising resorcinol arylate polyester chain members.

With regard to applicants' claim 26, 27, and 59 wherein the substrate layer comprises at least one metal selected from the group consisting of aluminum and steel, note that the reference discloses that the substrate layer is a pre-formed substrate made from a hard, rigid polymer providing a substrate onto which the coating layer is adhered to. In yet another embodiment, the substrate layer is a pre-formed substrate made from glass, ceramics, or a metal such as steel or aluminum, e.g., an automotive panel.

Specifically with regard to applicants' claim 27 and 60, wherein the thicknesses of layers are: a coating layer of about 2-2,500 microns; a second layer of about 2-2,500 microns; and an adhesive layer of about 8-2,500 microns, the reference discloses in paragraph 79 of page 7 that the tie-layer may be from about 0.5 to about 50 mils, and in one embodiment may have a minimum thickness of about 1 mil to ensure good thermoformability and adhesion characteristics. The reference notes that the thickness of the tie-layer depends on the final geometry and shape of the multi-layer article, and may vary depending on the location within the article itself.

With regard to applicants' claim 28 regarding the article of claim 1 which is an OVAD device as disclosed by applicants, the reference discloses that the substrate layer is a pre-formed substrate made from a hard, rigid polymer providing a substrate onto which the coating layer is adhered to. In yet another embodiment, the substrate layer is a pre-formed substrate made from glass, ceramics, or a metal such as steel or aluminum, e.g., an automotive panel.

Art Unit: 1711

With regard to applicants' claim 33 wherein the assembly of coating layer and second layer is formed by coextrusion, the reference discloses in paragraph 50 of page 5 that the weatherable coating layer may be produced as a separate layer, followed by application to a second layer of the multilayer article of the present invention. It can also be produced by simultaneous productions of the layers in a production process. Thus, the weatherable coating layer may be produced and employed in such methods but not limited to molding, extrusion, co-injection molding, *co-extrusion*, overmolding, coating, and the placement of the layer onto the surface of a second layer.

With regard to applicants' claim 34 wherein forming said assembly adjacent to the adhesive layer is performed by extrusion coating, lamination or compression molding, the reference discloses in paragraph 50 of page 5 that the tie-layer is a co-extruded film of two different heat sensitive adhesive resins.

Thus in view of the above, there appears to be no significant difference between the reference and that which is claimed by applicant(s). Any differences not specifically mentioned appear to be conventional. Consequently, the claimed invention cannot be deemed as novel and accordingly is unpatentable.

### **Obviousness nonstatutory Double Patenting**

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Art Unit: 1711

Claims 1-61 are provisionally rejected under the judicially created doctrine of double patenting over claims 2,4,5,-9, 12-18, 20-23, 26-34, 40-47 of copending Application No. 10/210746. This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

The subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows:

The application claims an article having an surface/coating layer comprising resorcinol arylate polyester chain members. In one embodiment, the article is a multilayer structure with the coating layer comprising resorcinol arylate polyester chain members. The instant structure displays good adhesion properties, good mechanical properties, weatherability, and UV resistance. The reference further discloses that the outer layer of the article of the present invention is comprised of arylate polyester chain members. Said chain members comprise at least one diphenol residue in combination with at least one dicarboxylic acid residue wherein the diphenol residue is derived from a 1,3-dihydroxybenzene moiety, as illustrated in Formula 1, commonly referred to as resorcinol or resorcinol moiety. Additionally, the reference notes that suitable dicarboxylic acid residues include aromatic dicarboxylic acid residues derived from monocyclic moieties, preferably isophthalic acid, terephthalic acid, or mixtures of isophthalic and terephthalic acids, or from polycyclic moieties, including diphenyl dicarboxylic acid, diphenylether dicarboxylic acid, naphthalenedicarboxylic acid such as naphthalene-2,6-dicarboxylic acid. In one embodiment, the dicarboxylic acid is 1,4-cyclohexanedicarboxylic acid. See also page 3 paragraph 24 and 28.

Furthermore, there is no apparent reason why applicant would be prevented from presenting claims corresponding to those of the instant application in the other copending application. See also MPEP § 804.

### **Correspondence**

Please note that the cited U.S. patents and patent application publications are available for download via the Office's PAIR. As an alternate source, all U.S. patents and patent application publications are available on the USPTO web site ([www.uspto.gov](http://www.uspto.gov)), from the Office of Public Records and from commercial



Art Unit: 1711

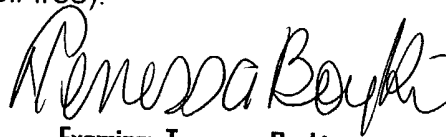
**sources. Applicants may be referred to the Electronic Business Center (EBC) at <http://www.uspto.gov/ebc/index.html> or 1-866-217-9197.**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Terressa Boykin whose telephone number is 571 272-1069. The examiner can normally be reached on Monday through Friday from 6:30am to 3:00pm.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. The general information number for listings of personnel is ( 571-272-1700).

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

tmb



Examiner Terressa Boykin  
Primary Examiner  
Art Unit 1711